

What is claimed is:

1. An angular velocity sensor device comprising:

an angular velocity sensor including an oxide film affixed to a first semiconductor layer and a second semiconductor layer disposed above the first semiconductor layer, wherein the angular velocity sensor further includes a weight part formed within the second semiconductor layer that oscillates in a first direction and a second direction perpendicular to this first direction, a pair of driving electrodes for applying driving voltages for oscillating the weight part in the first direction, a pair of monitor electrodes for monitoring the oscillation of the weight part in the first direction, and detection electrodes for detecting oscillation of the weight part in the second direction occurring when, on top of the oscillation in the first direction, an angular velocity acts about an axis orthogonal to the first and second directions;

a self-oscillating circuit for generating first and second driving voltages mutually opposite in phase to be applied to the pair of driving electrodes;

a pair of C/V-converting circuits for impressing a predetermined DC voltage on capacitors formed by the monitor electrodes and the weight part and detecting currents that consequently flow and generating voltages proportional to a static capacitances of the capacitors;

a differential amplifier circuit for obtaining a voltage difference between the output voltages of the C/V-converting circuits and supplying the voltage difference to the

self-oscillating circuit as a feedback voltage;

a switch for selecting the first or second driving signals;

and

an adding circuit for adjusting the amplitude of the driving signal selected with the switch and adding the driving signal selected to the voltage difference outputted by the differential amplifier circuit, wherein an output signal of the adding circuit is supplied to the self-oscillating circuit as a feedback signal.

2. An adjustment method for adjusting selection of the first and second driving signals with the switch and the amplitude of the driving signal selected with the switch and inputted to the adding circuit for the angular velocity sensor device of claim 1, the adjustment method comprising:

inputting the output signal of the adding circuit as a measurement signal and one of the first and second driving signals as a reference signal to a lock-in amplifier;

applying an AC signal of a frequency away from a resonant frequency of the weight part to the driving electrodes by a signal generator substituted for the self-oscillating circuit;

adjusting the selection of the first and second driving signals with the switch and the amplitude of the driving signal selected with the switch and inputting the driving signal to the adding circuit so that the absolute value of a DC output voltage of the lock-in amplifier is minimized; and

removing the signal generator and the lock-in amplifier

and supplying the output voltage of the adding circuit to the self-oscillating circuit as a feedback signal and commencing measurement of angular velocity.